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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,045	12/22/2000	Antonio J. Colmenarez	US 000403	9048

7590 02/26/2003

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EXAMINER

SHAPIRO, LEONID

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 02/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/746,045

Applicant(s)

COLMENAREZ ET AL.

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 5. 6) ☐ Other: .

***Drawings***

1. The drawings are objected to because Fig. 1 has duplicate number 1A with the same items as Fig. 1. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

2. The disclosure is objected to because of the following informalities: On page 7, Line 21 LED should have number 103 instead of 111.

Appropriate correction is required.

***Claim Objections***

3. Claim 26 objected to under 37 CFR 1.75 as being a substantial duplicate of claim 25. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-9 rejected under 35 U.S.C. 102(e) as being anticipated by Lin (US Patent No. 6,346,933 B1).

As to claim 1, Lin teaches a system with: at least one light source in a movable hand-held device (See Fig. 1, item 11, in description see Col. 3, lines 25-32); at least one light detector that detects light from light source (See Fig. 1, item 31, in description see Col. 3, lines 32-35); a control unit that receives image data from at least one light detector (See Fig. 1, item 30, in description see Col. 3, lines 32-45); wherein the control unit detects position of the hand-held device in at least two-dimensions from the image data from the at least one light detector and translates the position to control a feature on a display (See Fig. 1, items 11, 30, 31, 37 in description see Col. 3, lines 46-54).

As to claim 2, Lin teaches at least one light detector is a digital camera (See Fig. 1, item 30, in description see Col. 3, lines 32-45).

As to claim 3, Lin teaches digital camera captures a sequence of digital images that include the light emitted by the hand-held device transmitted to the control unit (See Fig. 1, items 30-31, 63a-63n, in description See Col. 4, Lines 17-33).

(See Fig. 1, items 30-31, 63a-63n, in description See Col. 4, Lines 17-33).

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As to claim 4, Lin teaches the control unit comprises an image detection algorithm that detects the image of the light of the hand-held device in the sequence of images transmitted from the digital camera (See Fig. 1, items 16, 33, 35, 63a-63n, in description See Col. 4, Lines 33-54).

As to claim 5, Lin teaches the control unit maps a position of the detected hand-held device in the images to a display space for the display (See Fig. 1, items 13, 16, 37, in description See Col. 6, Lines 6-20).

As to claim 6, Lin teaches the mapped position in the display space controls the movement of a feature in the display space (See Fig. 1, items 13, 16, 37, in description See Col. 6, Lines 21-45).

As to claim 7, Lin teaches the feature in the display space is a cursor (See Col. 1, Lines 27-46).

As to claims 8-9, Lin teaches the captured images processed by the control unit for the purpose of teleconferencing (presentation), image transmission, and image recognition (See Col. 2, lines 30-34).

5. Claim 23 rejected under 35 U.S.C. 102(b) as being anticipated by Rice et al. (US Patent 5,973,672).

Rice et al. teaches a system comprising two or more movable hand-held devices, each hand-held device with at least one light source (See Fig. 1, item 15, in description See Col. 1, Line 61 to Col. 2, Line 11), at least one light detector detecting light from the at least one light source of each of the two or more hand-held devices (See Fig. 1, item 18, in description See Col. 1, Line 61 to Col. 2, Line 26), a control unit that receives image data from the at least one light

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detector (See Fig. 1, items 19-23, in description See Col. 1, Line 61 to Col. 2, Line 26), wherein the control unit detects the positions for each of the two or more movable hand-held devices in at least two dimensions from the image data from the at least one light detector and translates the positions for each of the two or more movable hand-held devices to separately control two or more respective features on a display (See Fig. 1, items 19-23, in description See Col. 1, Line 61 to Col. 2, Line 26).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin as  
aforementioned in claim 1 in view of Kim. et al. (US Patent No. 6,424,335 B1).

Lin does not show at least one light source is an LED.

Kim et al. teaches LED as light source See Fig. 1, item 100, in description See Col. 8, Lines 44-58). It would have been obvious to one of ordinary skill in the art at the time of invention to use LED as light source as shown by Kim et al. in the Lin apparatus in order to achieve wireless input device which is energy efficient, consistent with operating the input device an extended distance from the computer (See Coll. 3, Line 66 to Col. 4, Line 2 in the Kim et al reference).

7. Claims 11-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin, and Kim et al. as aforementioned in claim 1 in view of Fitts (US Patent No. 5,175,601).

As to claims 11-12, Lin does not show two digital cameras each capture a sequence of digital images that include the light emitted by the hand-held device, transmitted by each camera to the control unit.

Fitts teaches two cameras with digitizers and processing of digitized images (See Fig. 1, items 2-3, 13,15, in description See Col. 7, Lines 45-68). It would have been obvious to one of ordinary skill in the art at the time of invention to use two cameras as shown by Fitts in the Lin apparatus to allow two digital cameras each capture a sequence of digital images that include the light emitted by the hand-held device, transmitted by each camera to the control unit in order to permit on line interaction (See Coll. 6, Line 45-46 in the Fitts reference).

As to claim 13, Lin teaches an image detection algorithm that detects the image of the light of the hand-held device in each sequence of images transmitted from digital camera (See Fig. 1, items 16, 33,35, 63a-63n, in description See Col. 4, Lines 33-54).

Lin does not show two digital cameras.

Fitts teaches two cameras with digitizers and processing of digitized images (See Fig. 1, items 2-3, 13,15, in description See Col. 7, Lines 45-68). It would have been obvious to one of ordinary skill in the art at the time of invention to use two cameras as shown by Fitts in the Lin apparatus to develop an image detection algorithm that detects the image of the light of the hand-held device in each sequence of images transmitted from two digital cameras in order to permit on line interaction (See Coll. 6, Line 45-46 in the Fitts reference).

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As to claim 14, Lin does not show the control unit with depth detection algorithm that uses the position of the light in the images received from each of the two cameras to determine a depth parameter from a change in a depth position of the hand-held device.

Fitts teaches two cameras with digitizers and processing of digitized images (See Fig. 1, items 2-3, 13, 15, in description See Col. 7, Lines 45-68). It would have been obvious to one of ordinary skill in the art at the time of invention to use two cameras as shown by Fitts in the Lin apparatus to develop depth detection algorithm that uses the position of the light in the images received from each of the two cameras to determine a depth parameter from a change in a depth position of the hand-held device cameras in order to permit on line interaction (See Coll. 6, Line 45-46 in the Fitts reference).

As to claims 15-16, Lin does not show the control unit maps a position of detected hand-held device in at least one of the images from one of the cameras and depth parameter to a 3D rendering in a display space and mapped position controls the movement of a feature in 3D rendering in the display space.

Fitts teaches to use identifiable points on 3-D surface and measuring X-Y-Z coordinates of these points based on knowledge of how two cameras are referenced to each other (See Fig. 1, items 2-3, 12, in description See Col. 3, Lines 33-54). It would have been obvious to one of ordinary skill in the art at the time of invention to use two cameras as shown by Fitts in the Lin apparatus to map a position of detected hand-held device in at least one of the images from one of the cameras and depth parameter to a 3D rendering in a display space and mapped position controls the movement of a feature in 3D rendering in the display space in order to permit on line interaction (See Coll. 6, Line 45-46 in the Fitts reference).

8. Claims 17-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin as aforementioned in claim 1 in view of Arita et al. (US Patent No. 6,188,388 B1).

As to claims 17-18, Lin does not show two light sources in one hand-held unit and the digital camera captures a sequence of digital images that includes the light from the two light sources of the hand-held, the sequence of images transmitted to the control unit.

Arita et al. teaches two light sources in one hand-held unit (See Fig. 1, 9-10, items Pb, Kh, Ki, in description See Col.12, Lines 11-25). It would have been obvious to one of ordinary skill in the art at the time of invention to use two light sources as shown by Arita et al. in the Lin apparatus to allow the digital camera captures a sequence of digital images that includes the light from the two light sources of the hand-held, the sequence of images transmitted to the control unit in order to improve precision (See Coll. 4, Line 5-8 in the Arita et al. reference).

As to claim 19, Lin show the control unit has an image detection algorithm (in abstract Lin identifies gesture spatial pattern which obviously if not inherently includes detection algorithm) Lin does not show detecting the image of the two light sources in the sequence of images transmitted from the digital camera.

Arita et al. teaches two light sources in one hand-held unit (See Fig. 1, 9-10, items Pb, Kh, Ki, in description See Col.12, Lines 11-25). It would have been obvious to one of ordinary skill in the art at the time of invention to use two light sources as shown by Arita et al. in the Lin apparatus to allow an image detection algorithm that detects the image of the two light sources in the sequence of images transmitted from the digital camera in order to improve precision (See Coll. 4, Line 5-8 in the Arita et al. reference).

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As to claims 20-21, Lin does not show and detected angular aspect of the hand-held device from the images of the two light sources does not maps angular aspect to a display space.

Arita et al. teaches two light sources in one hand-held unit (See Fig. 1, 9-10, items Pb, Kh, Ki, in description See Col.12, Lines 11-25). It would have been obvious to one of ordinary skill in the art at the time of invention to use two light sources as shown by Arita et al. in the Lin apparatus to allow show and detected angular aspect of the hand-held device from the images of the two light sources does not maps angular aspect to a display space in order to improve precision (See Coll. 4, Line 5-8 in the Arita et al. reference).

9. Claim 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin and Arita et al. as aforementioned in claim 22 in view of Fitts.

Lin and Arita et al. do not show light source emits visible light.

Fitts teaches visible light as light source (See Fig. 1, item 8, in description See Col. 8, Lines 33-35). It would have been obvious to one of ordinary skill in the art at the time of invention to use visible light source as shown by Fitts in the Lin and Arita et al. apparatus.

10. Claims 24-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Rice et al. as aforementioned in claim 23 in view Kim et al.

Rice et al. does not show the at least one light source of the two or more hand-held devices each turn on and off at a flashing frequency and emit light at a flashing wavelength with different frequencies.

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Kim et al. teaches digital pulse format suitable for infrared transmission and detection as well known (see Fig. 2C, item 180, in description See Col. 8, Lines 44-58). It would have been obvious to one of ordinary skill in the art at the time of invention to use pulsing sources as shown by Kim et al. in the Rice et al. apparatus at a flashing wavelength with different frequencies in order to allow input device is energy efficient (See Coll. 3, Line 66-67 in the Kim et al. reference).

11. Claim 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Rice et al. and Kim et al. as aforementioned in claim 26 in view of Fitts.

Rice et al. and Kim et al. do not show light source emits visible light.

Fitts teaches visible light as light source (See Fig. 1, item 8, in description See Col. 8, Lines 33-35). It would have been obvious to one of ordinary skill in the art at the time of invention to use visible light source as shown by Fitts in the Rice et al. and Kim et al. apparatus.

### *Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The Badyal et al. (US Patent No.6,151,015) reference discloses pen like computer pointing device.

The Escobosa (US Patent No.5,963,145) reference discloses system for providing wireless pointer control.

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The Bakerl et al. (US Patent No.4,578,674) reference discloses method and apparatus for wireless cursor control.


*Telephone Inquires.*

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Is  
February 21, 2003

  
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